US Army Corps of Engineers

FY09 USACE LEED Implementation Workshop

Provided by HQUSACE SDD
Technical Proponent
USACE Army LEED Implementation Guide

Introduction, Requirements, Responsibilities, Resources

Handout

- Workshop Schedule
- Acronyms List
- Slides for all sessions with note space
- LEED Registered Project Checklist filled in for currently observed point trends
- USACE LEED Documentation Requirements and Submittals Checklist

Not in Handbook but should be a copy at each desk (obtain at https://ten.usace.army.mil/TechExNet.aspx?p=s&a=AreasOfExpertise;522 or http://en.sas.usace.army.mil, “Engineering Criteria”):

- USACE Army LEED Implementation Guide

Feedback forms – comments & suggestions on workshop, future HQUSACE support initiatives

Command Emphasis

- Executive Orders
- DoD signer of Federal Environmental MOU
- Laws (EPAct 2005, EISA 2007)
- Army, Air Force Mandates and Policy
- USACE criteria
- HQUSACE monitoring of projects
- Highest level emphasis in USACE

Continued and increasing expectations from the very top!! There is a LEED Police!!

Energy Policy Act (EPAct) 2005 (Public Law 109-58)

All Federal Facilities:

If life-cycle cost effective:

- **Apply sustainable design principles to siting, design & construction**
- **Design buildings to achieve energy consumption levels 30% below ASHRAE 90.1 baseline**
- **Use water conservation features to achieve energy efficiency**
- **Use advance meters to provide daily data that measures hourly consumption, incorporate into EMCS, make data available to facility/energy manager**

Use Energy Star or FEMP designated products

Report new building compliance status

Install electric meters at all buildings by 2012

All Federal Agencies:

- **Reduce energy consumption/gsf by 2% annually through 2015 (20% total with 2003 baseline year)**
- **To the extent economically feasible and technically practical, supply the following percentage of total electrical demand from renewable resources:**
  - **3% for FY2007-2009**
  - **5% for FY2010-2012**

Executive Order 13423: Strengthening Federal Environmental, Energy and Transportation Management

All Federal Facilities:

Comply with the Guiding Principles MOU (including 15% of existing buildings by 2015)

All Federal Agencies:

- **Reduce energy consumption 3% annually, 30% by 2015**
- **50% of required renewable energy new (installed after 1999)**
- **Reduce water consumption 2% annually**
- **Purchase EPPs**
- **Reduce purchase of toxic products, recycle, divert solid waste**
- **Reduce fleet petroleum consumption 2% annually through 2015**
- **Electronic equipment EPEAT registered, Energy Star**

Energy Independence and Security Act (EISA) 2007 (Public Law 110-140)

All Federal Facilities:

If life-cycle cost effective:

- **Reduce fossil fuel-generated energy consumption 55%by 2010, 100% by 2030**
- **30% of hot water demand met by solar water heaters**
- **Projects greater than 5000sf restore predevelopment hydrology**
- **Use water conservation technologies**

Meter natural gas and steam

Goal of 3% energy reduction per year (30% by 2015)

Purchase Energy Star lamps & fixtures, appliances with standby power

All Federal Agencies:

Obtain external certification of 5% of buildings

- **To the extent economically feasible and technically practical, supply 25% of total electrical demand from**

MOU Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings

All Federal Facilities:

If life-cycle cost effective:

- **Reduce energy cost budget new construction 30%, renovation 20%**
- **Use integrated design and whole building commissioning**
- **Energy Efficiency (30% reduction), install utility meters**
- **Reduce potable water use indoors 20%, outdoors 50%**
- **Indoor Environmental Quality: thermal comfort, moisture control, daylighting, low-emitting materials, air quality protection during construction (flushout)**
- **Materials: recycled content (EPA), biobased (USDA)**
- **50% construction waste diversion**
- **Eliminate ozone depleting compounds**

Document in High Performance Buildings Database

Recycled Content: EPA Comprehensive Procurement Guidelines (CPG)

Biobased Content: USDA Federal Biobased Products Preferred Procurement Program (FB4P)

- Mandatory all federal agencies (Public Law)
  - If the agency designates a product, we must buy it with their recommended recycled/biobased content unless we have justification for non-use
    - Technically unsuitable
    - Unavailability
    - Prohibitive cost
    - Prohibitive schedule impact
  - Example EPA designated products: concrete, rigid and batt insulation, metal roofing
  - USDA designations effecting buildings currently limited (lubricants, linens)

Current Requirements (Army)

- Beginning FY08, All new construction & major renovation – LEED-NC Silver (minimum 33 LEED points)
- Regardless of funding source - includes OMA, BRAC, tenant organizations (SOF, DoD)
- Army Family Housing & Residential Communities Initiative – still SPIRIT Gold
- 50% waste diversion mandatory
- Energy reduction mandatory (EPAct) – MT 30% regardless of LCC, non-MT based on life cycle cost analysis
- (USACE) LEED Accredited Professional (AP) required all design and construction teams
- Certifiable - “Able to achieve USGBC certification if submitted”
- Beginning FY09, all Silver requirement projects must be registered and use LEED Letter Templates
- Coming requirement: 5% of projects USGBC certified

Exemptions (Army)

Exempt means exempt from LEED Silver, NOT exempt from LEED altogether – must earn mandatory and all feasible points.

LEED Silver exemption for buildings **not climate controlled**

- Climate control is defined as mechanically heated and/or cooled for human comfort.
- Any amount of climate control – building not exempt.

LEED Silver exemption for **horizontal construction**

- Horizontal construction is on or under the ground (no buildings) such as airfield, roads, utilities, bridges.
- Climate controlled building in range or other horizontal construction projects – building is **not** exempt.

Exemptions (Army)

LEED Silver exemption for overseas contingency construction and CONUS interim facilities

- Interim facility requirement is short term (normally 3 years or less) urgent requirement due to transitory peak military missions, deployments, military contingency operations, disaster relief, or pending approval and construction of real property facilities via normal military construction programs.

LEED Silver exemption for renovation and repair projects that are NOT defined as Major Renovation

- Major renovation is renovation that exceeds garrison commander funding authority AND has a repair to replacement ratio equal to or greater than 25%.

Failure, Waivers (Army)

- If, after budget lock, project cannot meet LEED requirement within funds available, PDT submits change request IAW AR 420-1, Chapter 4 (Installation chain and USACE chain).
  - Submit request as soon as failure is known, but no later than next prescribed reporting point.
- If, at construction completion, the required level is not achieved, PM will prepare and submit Lessons Learned report to HQUSACE RIT Program Manager and E&C cost engineering POC explaining reason for failure.

Current Requirements (Air Force)

- Prior to FY09, selected projects are required to achieve various LEED scores, certification on a case-by-case basis
- Beginning FY09, All new construction & major renovation – LEED-NC Silver
- *Horizontal construction (airfield, roads), utilities, industrial facilities – lower LEED score required
- *EPAct energy reduction based on life cycle cost analysis
- (USACE) LEED AP required all design and construction contractors
- Certifiable - “Able to achieve USGBC certification if submitted”
- Beginning FY09, 5% of projects will be selected for formal certification by USGBC

USACE Army LEED Implementation Guide applies to AF projects with minor (*) exceptions

Our Environmental Yardstick: LEED-NC (V2.2)

- Leadership in Energy and Environmental Design for New Construction and Major Renovation
- Created and maintained by U.S. Green Building Council (USGBC) - nonprofit industry-based organization
- Private sector industry standard for green building achievement
- Objective, measurable
- 6 Categories, 69 points
- Meet the requirements, earn the point
- Wide range, some points mutually exclusive
- Each project picks the most feasible points
- 4EA achievement levels: Certified, Silver, Gold, Platinum, based on number of points earned.
- LEED Silver = minimum 33 points.

USGBC will issue LEED 2009 in Spring 2009. Army will evaluate and issue written guidance. Hold course with V2.2 until guidance is received

How Projects are Scored with LEED

- LEED has building points, site selection points, site design points, shared and aggregate (both building and site contribute) points.
- Each non-exempt building plus site must attain LEED Silver
- Projects with multiple buildings: use USGBC publication Application Guide for Multiple Buildings and On-Campus Building Projects (AGMBC) to generate one project score for whole project
  - Which points are tallied on a whole-job basis (waste diversion)
  - Which points must be documented separately for each building (commissioning)
  - Special scoring allowances unique to campus environment (consolidated parking)
- Renovations and additions: points are generally scored based on scope of project (if, then). LEED–NC is intended for both new construction and major renovation.

Other Rating Tools

By USGBC:

- **LEED-EB for Existing Buildings: Operations & Maintenance emphasis, minor renovations, several points dependent on O&M practices**
- **LEED-CI for Commercial Interiors: fit-out and furnishing of built space (MEDCOM)**
- **LEED-CS for Core & Shell: development of lease space to be fit out by others**
- **LEED for Schools: Similar to NC except emphasis on school environment (USGBC will not certify a school under LEED-NC) (DoD Schools)**
- **LEED for Homes: Points and certification system different, oriented to small residential**
- **LEED-ND for Neighborhood Development: Points system for city/master planning**

By Others:

- **OCONUS host nation standards (Germany)**

If on Army property & User wants to use a rating tool other than LEED-NC, must obtain permission from ACSIM (demonstrate equivalency)

Army MILCON Transformation (MT)

- USACE response to unprecedented Army construction program needs
  - Driven by:
    - Army reorganization
    - BRAC
    - OCONUS re-stationing
    - Grow the Force initiative
- Critical execution schedules
- Full scope execution is required
- Limited funds – execution within funds available is critical

"Cheaper, Better, Faster, Greener"

Where We Are Today in the MILCON Transformation Process

- Performance RFP, not prescriptive
- Industry Standards
- Uniform RFP all USACE Districts (mandatory wizard)
- Emphasis on proposals meeting funds available
- Emphasis on schedule/contract duration
- ACSIM is the Customer – no deviations without ACSIM approval
- IDG incorporated to extent does not jeopardize award within funds available

Partner with industry, attract innovative solutions, focus on total program execution

MILCON Transformation and LEED

- LEED made the cut – testament to Army's commitment
- Life-cycle paybacks
  - Utility costs
  - Occupant performance
  - Environmental costs
- DB Proposers select points

COS Continuous Build Concept

- Army needs high degree of facility standardization to support mission, unit mobility
- COS enforces compliance, is life-cycle manager of standard design
- Transition from performance RFP to Adapt-build
- COS regional IDIQ contracts for standard designs
- Geographic district responsible for site improvements outside the 5 foot line
- COS and GD coordinate on contract packaging of building and site work (building with site, building only, site work only contracts)

COS Continuous Build Concept and LEED

- Building and site by separate parties requires greater Government coordination (Multiple Contractor Combined Project)
- COS Standard design management includes management of LEED documentation to eliminate duplication of effort
- New activities required by geographic district and COS to manage LEED when building and site are by separate parties

Validating LEED Achievement

- LEED documentation is how claimed credits are validated
- Every credit and prerequisite has specific documentation requirements
- Design and construction phase documentation
- Always required
- Cost of preparing LEED documentation greater than certification cost
- Included in design and construction costs

USGBC Project Certification

- Independent 3rd party USGBC review of all project LEED documentation and ruling on number of points earned.
- Costs from $2,000 to $20,000 depending on sf
- Separate activity from USGBC Project Registration
- Takes place after construction closeout (can request interim review at final design)
- Only selected USACE projects will seek USGBC certification

LEED “Certifiable”

- Government Validation versus USGBC Certification
- USACE District is responsible for applying USGBC standards, reviewing project LEED documentation for conformance and determining rating (USGBC function)
- Government Validation is default for all projects (even when USGBC certification is required)

LEED Documentation

ALL PROJECTS HAVE:

- Design phase documentation (final design)
- Preconstruction phase documentation
- Documentation accumulated during construction
- Large closeout submittal

Documentation Content

- Match USGBC documentation requirements (“certifiable”)
- What required & when for ALL PROJECTS is contained in USACE document “LEED Documentation Requirements and Submittals Checklist” (design through construction closeout)
- Some differences from USGBC requirements because USACE is an interested party in outcome
- Differences are noted on checklist
- Include in all DB, full design, construction contracts

http://en.sas.usace.army.mil, “Engineering Criteria”

LEED Letter Templates

- USGBC Preformatted fill-in-the-blank credit documentation forms with built-in calculators – one Letter Template for each credit
- Each form identifies required attachments
- Available to USGBC Registered Projects ONLY (copyright protected)
- May compile at LEED Online but hard copies currently still required.
- LEED Silver projects MUST use LEED Letter Templates (PDTs may require their use on exempt projects).
- USGBC Certification projects MUST use LEED Letter Templates.
- Multiple Contractor Combined Projects (COS – building and site by separate contractors) ALL PORTIONS require use of LEED Letter Templates.
- Sample set of LEED Letter Templates available for review ONLY at usgbc.org (copyright)

Project USGBC Registration

- Costs $450 per project.
- Not the same as, creates no future obligation to seek USGBC project certification.
- Project can be registered by PM, AE or design team, DB contractor.
- Standard designs registered by COS.
- Needed at start of full design (drawings & specs).
- Upon registration, online project set of LEED Letter Templates is created – website for all project documentation to be compiled
- Each registered project assigns one Project Administrator, who controls access and save/modify data privileges for all team members (can set up Government view access).
- May reassign Project Administrator, but only one at any given time.
- Download blank template, fill in and upload
- Upload attachments
- Multiple buildings: Download duplicate blanks, fill in for each building, upload all as attachments

Registered Project Administration Options – Performance RFP DB

- Single Contractor doing building & site: require DB Contractor to register and administer.
- District may register and administer project (furnish applicable templates to RFP Preparer, DB Contractor to fill in and return).

Registered Project Administration Options – DB With Partial Mandatory Design

- RFP Preparer prepares design documentation for mandatory design elements (ex: views credit/mandatory floor plan)
  - RFP Preparer registers project, transfers administration to DB contractor after award

- District may register and administer project (furnish applicable templates to RFP Preparer, DB Contractor to fill in and return).

Registered Project Administration Options – Design Bid Build

- Designer of Record prepares design phase documentation
  - Designer registers project, transfers administration to construction contractor after award
  - OR Designer of Record administers during construction phase (include in scope of construction services)
- District may register and administer project (furnish applicable templates to Designer, Contractor to fill in and return).

Registered Project Administration – Closeout (All Projects)

- Registered project contains all design and construction phase LEED documentation
- Copy and retain completed set of LEED documentation in USACE project file
- Transfer administration to Installation if desired (needed if Installation decides to seek USGBC certification or register building for LEED-EB)
  - or
- De-activate online project (call USGBC)

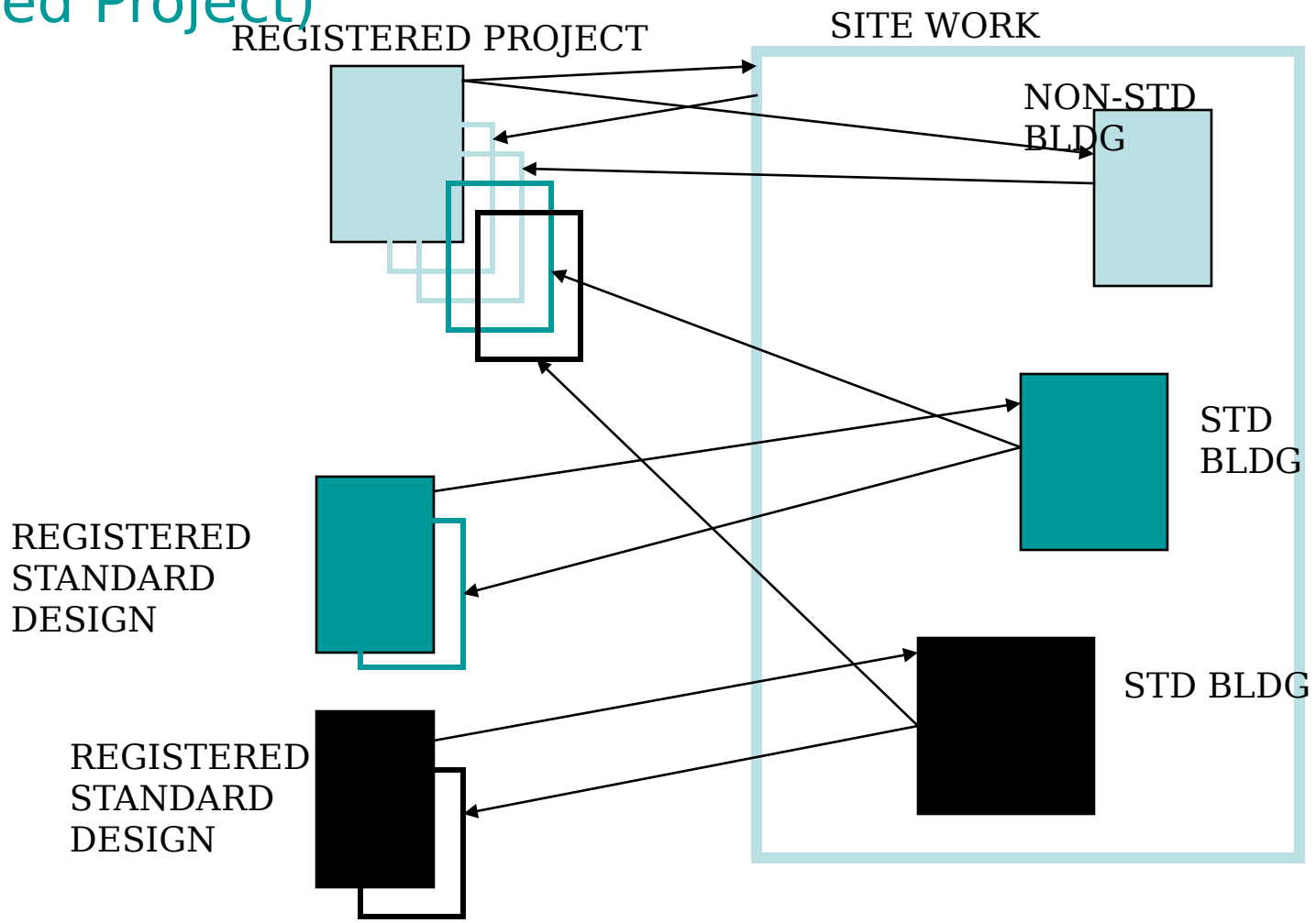
Building and Site by Separate Contractors

Multiple Contractor Combined Project LEED Registrations

- ALL Contractors are required to use LEED Letter Templates for consistent documentation format
- REGISTERED PROJECT is defined by scope of site work – site work and non-standard buildings get templates at Registered Project
- REGISTERED STANDARD DESIGNS are administered by COSs – standard design buildings get templates at Registered Standard Design
- All parties' completed templates compiled at Registered Project
- Selected standard design completed templates are also compiled at Registered Standard Design for future use.

COSs must develop procedures/assignments for administering Registered Standard Designs

LEED Registrations (Multiple Contractor Combined Project)

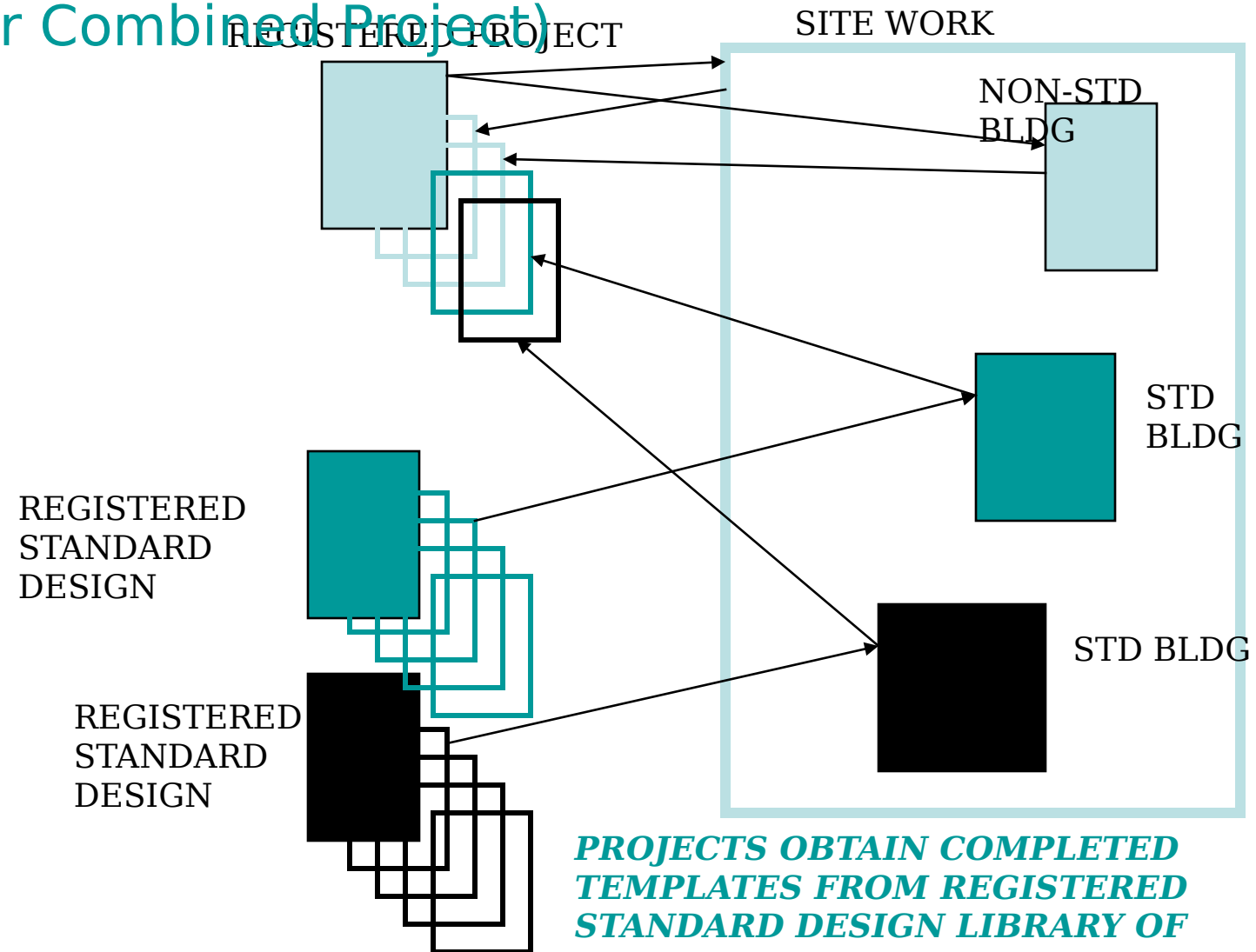


Multiple Contractor Combined Project

Registered Standard Designs – COS

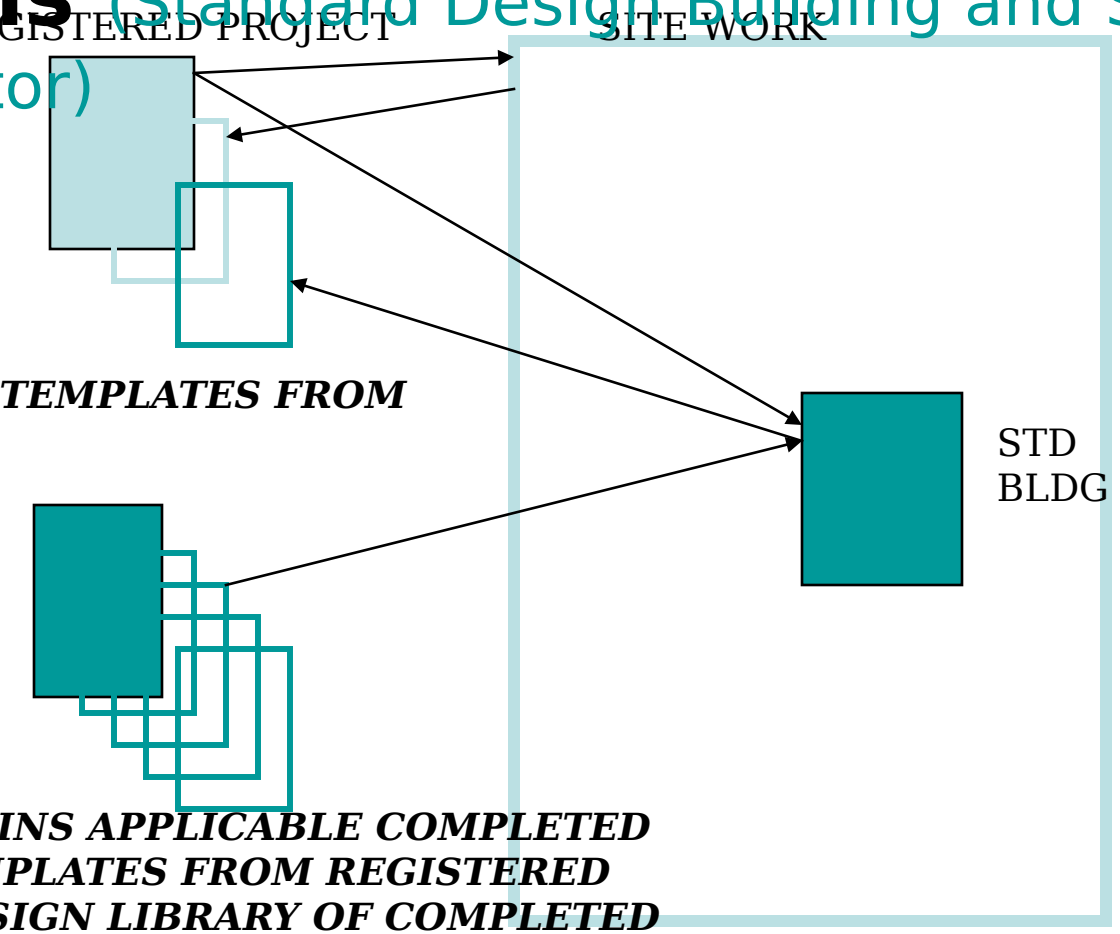
- COS registers and administers standard design
  - Provide blank building letter templates to COS building-only DB contractors
  - Collect completed letter templates from COS building-only DB contractors
  - Make library of completed templates available to future COS DB contractors
  - Develop set of completed templates for mandatory elements of standard design as standard design moves toward site-adapt (do not require creation of duplicates of completed templates)

Future – LEED Registrations (Multiple Contractor Combined Project)



COS Single Contractor LEED Registrations (Standard Design Building and Site by Same Contractor)

CONTRACTOR REGISTERS PROJECT – ALL BUILDING AND SITE TEMPLATES COMPILED AT REGISTERED PROJECT



PROJECT OBTAINS BLANK TEMPLATES FROM REGISTERED PROJECT

PROJECT OBTAINS APPLICABLE COMPLETED BUILDING TEMPLATES FROM REGISTERED STANDARD DESIGN LIBRARY OF COMPLETED TEMPLATES TO USE FOR PROJECT DOCUMENTATION

Reporting – Prescribed Reporting Points (Army)

At each prescribed reporting point, District-validated rating will be coordinated with and endorsed in writing by Installation DPW or reserve component equivalent, COS if applicable, designer and constructor as applicable. Endorsed LEED Project Checklist (signed or initialed by all parties) will be placed in project file by PM.

Design-Bid-Build Prescribed Reporting Points:

- Planning Charette
- Parametric/Code 3 Submittal
- Final Design
- Construction Closeout

Design-Build Prescribed Reporting Points:

- Planning Charette
- Parametric/Code 3 Submittal
- Conformed Proposal
- Construction Closeout

Purpose is to ensure Installation awareness and buy-in

P2 Reporting (Army)

General - LEED rating is “current” until project closeout, when it becomes “final”. LEED rating is only “pending” BEFORE initial charette when project LEED requirement is determined.

- Throughout life of project report “current” rating (planned/assumed achievement level).
- Only report “pending” prior to initial charette

Silver Exempt Projects: At rating indicate “N/A”. In comments block indicate rating tool used (SPIRIT or LEED) and actual current rating.

Multiple Building Projects: Report single project rating in accordance with AGMBC.

Air force is developing it’s own reporting system – USACE to beta test in FY08

LEED Responsibilities and Staffing

Who does what, How to Organize for Success

Project Manager

- Ensure LEED AP is required on AE teams
- Manage USGBC Registration strategy (who does what) if required
  - Initial registration
  - Transfer at construction award
  - Closeout transfer to Installation (or USGBC closing)
- Manage USGBC Certification strategy (who does what) if required
  - Application, fees
  - Coordination with USGBC
- Manage AE/Designer services during construction:
  - Identify and FUND preparer of CxA Commissioning activities & report at closeout (DBB)
  - USGBC certification coordination
- P2 Reporting
- Army Prescribed Reporting Points coordination & endorsed checklist in project file
- Ensure completed LEED documentation is in project file (DBB combine design, construction documentation)

Engineering

- Ensure LEED AP is on design team
- Incorporate LEED requirements in AE technical instructions
- Review pre-design and design submittals by others for LEED
- Prepare in-house pre-design and design submittals incorporating LEED, prepare LEED documentation
- Provide Commissioning Authority services if have capability and if requested:
  - CxA activities during design, construction
  - Commissioning report at closeout (DBB)
- Provide technical support to CD if requested:
  - Preconstruction submittal review
  - Closeout LEED submittal review
  - Participate in pre-closeout and closeout LEED review meetings
- Administer registered in-house projects, registered projects by others if requested (District mgt decision)

Construction Administration Team

- Ensure LEED AP is on Contractor team
- Manage preconstruction submittals
- Ensure construction phase documentation is kept current monthly
- Monitor progress on materials credits, coordinate corrective action if goal is not being met
- Observe compliance with contract LEED requirements in field
- Coordinate commissioning and preparation of commissioning report
- Coordinate occupancy with flush-out/IAQ testing if applicable
- Forward Contractor quarterly & final waste diversion reports to Installation waste management POC
- Coordinate closeout LEED submittal, pre-submittal and post-submittal review meetings (PM, designer, installation rep)

Pre-design and Design Phase Technical Responsibilities

- LEED is multidisciplinary – no one person is technically qualified for all points
- Assign each discipline responsibilities for each credit (includes coordination leads)
- Assign responsibilities for general topics (USGBC registration, LEED AP, overall score, documentation requirements)

SAS: Architect covers the general topics for activities where team does not include LEED AP

SAS Technical Responsibilities Spreadsheet

EAPR1	Fundamental Commissioning of the Building Energy Systems (PREREQUISITE)	ALL	**Owner's Project Requirements document
		MECH, ELEC	**Basis of Design document for commissioned systems
		MECH, ELEC	**Commissioning Plan
		MECH	Verify CxA qualifications
		MECH	HVAC & controls, domestic water heating system, special system (see LEED Reference Guide) commissioning
		ELEC	Interior & exterior lighting controls, special system (see LEED Reference Guide) commissioning
EAPR2	Minimum Energy Performance (PREREQUISITE)	MECH	Mech contribution, coordinate with other disciplines
		ELEC	Elec contribution to compliance
		ARCH	Building envelope contribution to compliance
EAPR3	Fundamental Refrigerant Management (PREREQUISITE)	MECH	
EA1	Optimize Energy Performance	MECH	Mech contribution, coordinate with other disciplines
		ELEC	Elec contribution to compliance
		ARCH	Building envelope contribution to compliance

AE Contract Guidance

- Require compliance with USACE Army LEED Implementation Guide
  - Covers Planning charettes, Code 3/Parametric estimate preparation, RFP preparation, full design
- Must supplement with specific instructions for each project
  - Air Force project guidance (special scoring requirements for industrial, infrastructure & utilities projects)
  - USGBC Registration, Certification guidance if applicable
  - Construction phase services
  - Special credit-related services if applicable (enhanced commissioning, credits with post-occupancy activities)

SAS: Design Manual plus Specific Instructions by Design Branch – must coordinate with PM to write Specific Instructions

Pre-design and Design Phase Technical Reviews

- Reviews follow formalized division of responsibilities by discipline for LEED credits
- Cost Engineer reviews parametric estimate & Sustainable Cost Template if needed
- Each reviewer consults District SDD POC for assistance as needed

In-House Design

- Same as technical review responsibilities but
- Must have a LEED AP on team
  - Assists each discipline in their responsibilities
  - Ensures correct interpretation of LEED credits
  - Coordinates team for materials credits with designer implementation strategies (always for salvage, rapidly renewable, others by PDT choice)
  - Ensures LEED design phase supporting documentation is correct and complete

SAS: LEED AP takes on general topics that were assigned to architect for technical reviews

District Decisions

- How to assign technical responsibilities
- How to accomplish commissioning activities
- When to require registration
- Who will register and administer registered projects
- COS who will register and administer standard designs
- Who will coordinate USGBC certifications if required

District SDD POC

- Disseminates information
- Provides policy/criteria interpretation
- Provides consulting/assistance as requested
- Supports management in developing local policy and procedures for execution

Each USACE District and Center is required to have at least one LEED-AP on staff.

Responsible for correct interpretation of LEED, information dissemination and assistance to PDTs and management

Becoming A LEED Accredited Professional (LEED AP)

- Study LEED Reference Guide, take 2 hour test
- USGBC also offers workshops
- All multiple choice questions
- Local testing centers (Prometric)
- Costs $300 to take test, Government can reimburse you if you pass (similar to professional registration testing – coordinate with supervisor beforehand)

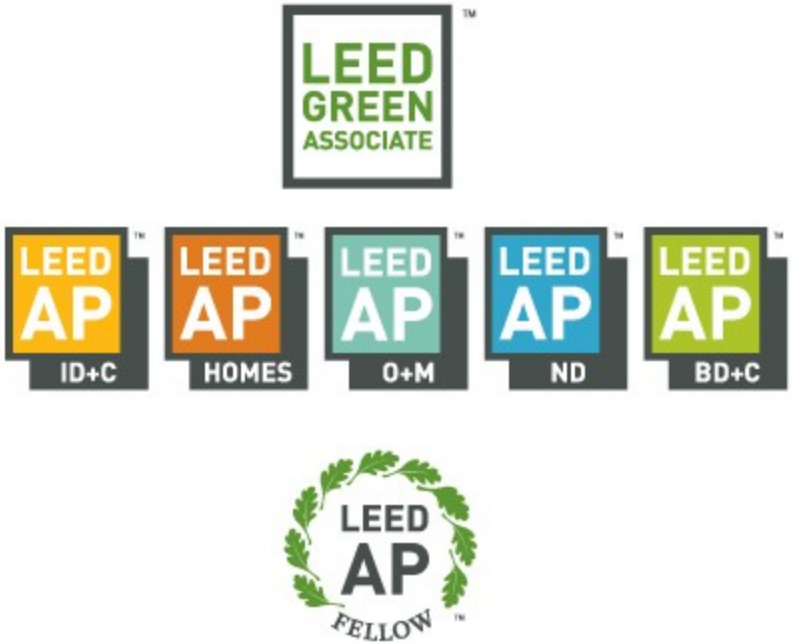
Major changes to LEED AP requirements Spring 09

Changes to LEED AP Program Spring 09

- 3-Tier Credentialing System
  - Green Associate (test)
  - Rating tool-specific AP (rating tool-specific test) can be a LEED AP for multiple rating tools
  - Fellow (exceptional contribution)
    - Legacy AP (inactive status)
- Biannual fee ($50) Coordinate with your mgt for reimbursement policy
- Biannual Continuing Education Requirement (30 hrs, 6 LEED-specific)
- APs need to show project experience for credential maintenance
- Existing LEED APs may opt-in for limited time; retain LEED AP status without testing
- Credentialing Program managed by Green Building Certification Institute (GBCI)

Changes to LEED AP Program

LEED Credentialing Program



Opt-in if you are currently a LEED AP! *Go to gbci.org for info.*

Resources

- USACE LEED Implementation Guide (Feb 09 update)
  - Appendix A contains detailed references section including federal mandates, policies and criteria, USGBC, USACE and other resources and tools.
- District SDD Point of Contact
- HQUSACE SDD Technical Proponent is Joanne Qualey. Rich Schneider and Annette Stumpf at ERDC and Judy Milton at SAS provide technical support as USACE SDD Center of Expertise.

You are a member of USGBC (Army membership)! See Implementation Guide Appendix A for info on member resources

Questions, Feedback

- Requirements
- Exemptions, Other Mandates
- Failure, Waivers
- LEED, LEED Scoring
- MT, COS
- Validation
- Documentation, LEED Letter Templates
- USGBC Registration, Administration
- Reporting
- Responsibilities and Decisions
- LEED AP
- Resources